REMARKS

By the present amendment, claim 1 has been amended to replace "which is intended to" by "wherein the device is adapted to" and to delete the expression "and at least one heat-transfer liquid/fluid to be regulated heat exchanger" in the introduction, so that the first and second exchangers are properly introduced in the body.

Further, claim 1 has been amended to recite:

- wherein the heat-transfer liquid circuit comprises derivation means from the engine,

- wherein said derivation means from the engine bypasses a portion of the heat-transfer liquid circuit including the engine,

- and wherein the bypassed portion of the heat-transfer liquid circuit also includes the heat-transfer liquid / recirculated exhaust gases exchanger.

Support for the added recitation is found in the original application, for example, claim 12 and page 11, lines 4-22 and the Figures.

Accordingly, claim 12 has been canceled and claims 13-14 have been amended to depend on claim 1 instead of claim 12.

New claim 23 dependent on claim 1 has been added to recite a derivation branch from the heat-transfer liquid / recirculated exhaust gases exchanger. Support for the added recitation is found in the original application, for example, page 19, lines 17-19.

Claims 1-5, 7-11, and 13-23 are pending in the present application. However, claims 18-22 have been withdrawn from consideration following a restriction requirement, and claims 1, 11, and 14 have been withdrawn from consideration following an election of species requirement.

Thus, only claims 1-10, 12-13 and 15-17 are under consideration. Claim 1 is the only independent claim.

I. Objection to claim 1

In the Office Action, claim 1 is objected to. It is alleged that the expression "at least one heat-transfer liquid/fluid to be regulated heat exchanger" is unclear.

This expression means there is at least one heat exchanger for exchanging heat between the heat-transfer liquid and the fluid to be regulated. However, this phrase in the introduction has been deleted, as discussed below in part II (the two specific heat exchangers are recited in the body of the claim).

In view of the above, it is submitted that the objection should be withdrawn.

II. Indefiniteness rejection

In the Office Action, claims 1-7, 9-10, 12-13, and 15-17 are rejected under 35 U.S.C. 112, second paragraph, as indefinite. The following expression are considered unclear:

- Claim 1: "which is intended to"
- Claim 1: "a first… exchanger" and "a second… exchanger"
- Claims 7, 10, 13: "the same signs"

Claim 1 has been amended to replace "which is intended to" by "wherein the device is adapted to" and to delete the expression "and at least one heat-transfer liquid/fluid to be regulated heat exchanger" in the introduction, so that the first and second exchangers are properly introduced in the body.

With respect to claims 7, 10, and 13, the objection is respectfully traversed. It is submitted that the terms "same signs" and "opposed signs" are explicitly defined at page 9, lines 7-10 of the specification, so that they are not indefinite to the person of the art.

In view of the above, it is submitted that the rejection should be withdrawn.

III. Art rejections based on Pott

In the Office Action, claims 1-2, 5, 9, 12-13, and 15 are rejected under 35 U.S.C. 102(b) as anticipated by DE 19750721A1 ("Pott").

Reconsideration and withdrawal of the rejection is respectfully requested. Figure 3 of Pott describes a circuit in which the fluid circulates from the engine exhaust through an exchanger 15, which, via a circuit 16 passing through an exchanger 17, can collect calories from the exhaust line, an EGR exchanger 23, an oil exchanger 6 (which can be by-passed), and a cooler 7, which can also be by-passed. Optional heating means are provided at 5 between the exchanger 15 and oil exchanger 6. A bypass line 3 creates a derivation from the engine.

Thus, in Pott, the EGR exchanger 23 is disposed upstream of the oil exchanger 6 on the main circuit line from the engine, and it is cannot be bypassed, let alone bypassed together with the engine.

In contrast, in the presently claimed invention, the heat-transfer liquid circuit comprises derivation means from the engine, which bypasses a portion of the heat-transfer liquid circuit including the engine, and the bypassed portion of the heat-transfer liquid circuit also includes the heat-transfer liquid / recirculated exhaust gases exchanger, as recited in present claim 1.

Particular embodiments of this feature is illustrated on the Figures of the present application, in which the engine 12 and the heat-transfer liquid / recirculated exhaust gases exchanger 16 are on the same portion of circuit that are bypassed by the derivation means.

An advantage of this feature of the presently claimed invention is that engine and heat-transfer liquid / recirculated exhaust gases exchanger can be removed together from the circuit when the engine is off. Namely, when the engine is off or cold, avoiding the heat-transfer liquid / recirculated exhaust gases exchanger together with the engine in an easy manner using the derivation means makes it possible to maintain the temperature levels of the heat-transfer liquid, in order, for example, to heat a passenger compartment when the engine is off. Thus, contrary to Pott, the arrangement of the presently claimed invention makes it possible to avoid cooling the gases through the heat-transfer liquid / recirculated exhaust gases exchanger in situations where the risk of NOx production is effectively low, i.e., to optimize a compromise between a need for increasing the temperature as quickly as possible to lower fuel consumption and a need to minimize NOx production.

This feature of the presently claimed invention and its advantages are not taught or suggested in Pott. Therefore, the present claims are not anticipated by Pott, and not obvious over Pott.

In addition, with respect to the dependent claims, it is submitted that the cited references fail to teach or suggest the combined features of each of these respective claims. Therefore, each of the dependent claims is not anticipated by Pott, and not obvious over Pott.

In particular, with respect to claim 5, it is submitted that Pott is completely silent regarding connecting the two exchangers and the heat source or the heat sink in series in the heat-transfer liquid circuit, in the order: heat source or heat sink, heat-transfer liquid / oil exchanger, heat-transfer liquid / recirculated exhaust gases exchanger, considering the direction of circulation of the heat-transfer liquid in the circuit.

As acknowledged on page 5 of the Office Action, the order in Pott is "the generator (22), the EGR cooling device (23) and the oil cooler (6)," i.e., the EGR exchanger of Pott is upstream of the oil cooler, not downstream as required in present claim 5.

In the present invention as recited in present claim 5, the heat-transfer liquid / recirculated exhaust gases exchanger is located downstream of the heat-transfer liquid / oil exchanger, i.e., relatively close to the return toward the engine, as compared to Pott, so that the relatively lower temperature of the heat-transfer liquid makes it possible to optimize the heat exchange with the recirculated exhaust gases (EGR). As a result, it is possible to lower optimally the temperature of these recirculated exhaust gases, so as to limit effectively the production of nitrogen oxides, as explained in the present specification, for example at page 15, lines 14-17.

In summary, in the arrangement according to claim 5, the location of the heat-transfer liquid / recirculated exhaust gases exchanger is optimized both (i) in the case where the engine is off and the heat-transfer liquid does not pass through the portion of the circuit including the engine and this exchanger, and (ii) in the case where the engine is on and the heat-transfer liquid is used to lower the temperature of the recirculated exhaust gases. This feature of claim 5 is not taught or suggested in Pott. Therefore, claim 5 is not anticipated by Pott, and not obvious over Pott.

In view of the above, it is submitted that the rejection should be withdrawn.

IV. Art rejections based on Pfeffinger

In the Office Action, claims 1-2, 5, 9, 10, 12, and 15-17 are rejected under 35 U.S.C. 102(b) as anticipated by US 6,722,715 to Pfeffinger et al. ("Pfeffinger").

Further, claims 3-4 and 7 are rejected under 35 U.S.C. 103(a) as obvious over Pfeffinger in view of DE 2927680 ("Sause").

Reconsideration and withdrawal of the rejections is respectfully requested. Pfeffinger discloses a circuit with a heating branch including, from the engine exit, an EGR exchanger 13, a warmer 14 and an oil/cooling fluid exchanger 16. However, the EGR exchanger 13 of Pfeffinger is not disposed on a portion of the circuit that can be bypassed. Thus, Pfeffinger does not teach or suggest an arrangement as in the presently claimed invention. The remarks above directed to Pott also apply to Pfeffinger. Further, Sause fails to remedy the deficiencies of Pfeffinger. Therefore, the present claims are not anticipated by Pfeffinger, and not obvious over Pfeffinger taken alone or in any combination with Sause.

In addition, with respect to the dependent claims, Pfeffinger also fails to teach or suggest the combined features of each of these respective claims.

In particular, with respect to present claim 5, the EGR exchanger of Pfeffinger is upstream of the exchanger 1, as in Pott. The remarks above directed to Pott in connection to claim 5 also apply to Pfeffinger.

Further, Sause fails to remedy the deficiencies of Pfeffinger. Therefore, the present claims, and in particular claim 5, are not anticipated by Pfeffinger, and not obvious over Pfeffinger taken alone or in any combination with Sause.

In view of the above, it is submitted that the rejections should be withdrawn.

Withdrawn claims

Rejoinder of the withdrawn claims is respectfully requested, since the art rejections are properly addressed in the present response, as discussed above, and at least claim 1 remains generic to all species.

Conclusion

In conclusion, the invention as presently claimed is patentable. It is believed that the claims are in allowable condition and a notice to that effect is earnestly requested.

In the event there is, in the Examiner's opinion, any outstanding issue and such issue may be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of the response period. Please charge the fee for such extension and any other fees which may be required to our Deposit Account No. 502759.

Respectfully submitted,

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